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Title

'Thirty years of heart failure'. Highlights from the 20th British Society for Heart Failure Annual Autumn Meeting (23-24 November 2017)

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The British Society for Heart Failure 20th Annual Autumn Meeting - held on 23-24th November 2017 in London – gave a tip of the hat to the landmark 1987 CONSENSUS trial [1] in adopting as its theme 'Three decades of heart failure'. Dr Simon Beggs and Professor Roy Gardner report some of the highlights from a meeting that delivered education and enjoyment in equal measure for the nearly 900 delegates.

Thirty years of heart failure

In keeping with the historically commemorative tone, Professor Theresa McDonagh (King's College London) delivered a chronological overview of the development of natriuretic peptide biomarkers in heart failure, 'from bench to bedside'. Following from the discovery of atrial natriuretic peptide (ANP) in 1981, brain natriuretic peptide (BNP) was subsequently located in porcine cerebrum, before its predominant source in humans was located in the myocardium. Early mechanistic studies noted the vasodilatory effects of BNP, and characterised its role as a 'white knight' antagonist of the renin-angiotensin-aldosterone system. The clinical utility of BNP and its cousin, NT-proBNP, were demonstrated in a series of landmark studies, confirming both their strong negative predictive value for excluding heart failure in patients with undifferentiated breathlessness in the acute [2] and chronic [3] settings, and their prognostic value [4].

Professor John Cleland (University of Glasgow) similarly led the audience on a tour de force journey through the development of cardiac resynchronisation therapy (CRT). Tracing a remarkable story back to 1935, he located this as the first documentation that conduction disorders caused ventricular dyssynchrony [5]. Pacing-induced dyssynchrony was described in the 1960s and 1970s,[6] with early experimental treatments for dyssynchrony attempted in the 1980s and early 1990s [7-9]. Published in 2001, the MUSTIC trial [10] was a key

milestone, demonstrating in a single-blinded cross-over trial that randomisation to CRT improved 6-minute walk distance among patients with heart failure and reduced ejection fraction (HFrEF) who were in sinus rhythm. In 2005, the CARE-HF and COMPANION trials [11,12] reported on the effects of CRT (with or without a defibrillator in the case of the latter trial) in patients who had HFrEF, were in NYHA functional class III or IV, and had a QRS duration of at least 120ms. The stunning results were that CRT reduced mortality by ~40%, and improved symptoms, quality of life, systolic blood pressure and left ventricular (LV) function. Looking to the future, Professor Cleland forecast that the evolutionary development of CRT might derive from advances in such fields as quadripolar, multisite, leadless or His-bundle pacing.

Fifty years on from the first cardiac transplant

Performed on 3rd December 1967, the first human heart transplant was another notable anniversary celebrated at this meeting. Half a century on, Dr Jayan Parameshwar (Papworth Hospital, Cambridge) summarised who should be referred for heart transplantation today. In the absence of clear contraindications, triggers to prompt urgent inpatient referral for transplant assessment include:

- Inotrope or intravenous diuretic dependency
- Requirement for IABP to prevent secondary organ failure
- Intractable ventricular arrhythmias with ventricular dysfunction.
- Ventilation for pulmonary oedema

In an outpatient population, transplant assessment should be considered for patients with recurrent heart failure admissions, the need to decrease or stop prognostic medications, rising or persistently elevated natriuretic peptide concentrations, and worsening right ventricular function or systolic pulmonary artery pressure (>50 mmHg) on echocardiography. Whilst history's first heart transplant recipient lived for just eighteen days, half a century of incremental advances in transplant care means that, following transplantation, median life expectancy for recipients today is at least eleven years, and continuing to rise.

Update session

Leaving history behind, Professor Mark Petrie (University of Glasgow) led the audience through a cutting edge update on peripartum cardiomyopathy (PPCM). Encouragingly, mortality due to PPCM may be falling, with 6-month survival 96% or greater in recent series. Data on longer term mortality are more sparse, with 7-8 year mortality estimated at 7-16%. Myocardial recovery is common, with 53-72% having a left ventricular ejection fraction (LVEF) >50% at 12 months, and 83% experiencing at least some recovery in LV function by this stage. This is critical in planning for further pregnancies, because the risk of recurrent heart failure or death is significantly higher in women with persistently reduced LVEF [13]. The therapeutic approach to PPCM is predominantly one that balances the presumed benefits of conventional heart failure therapies against the potential harms to the foetus of these interventions. Whilst bromocriptine has long been held as a specific therapy for PPCM – this being mechanistically intuitive due to the apparent pathophysiological role of prolactin in PPCM – the evidence for its efficacy is limited [14,15]. However, recent data from the worldwide registry on PPCM reveal that thromboembolic events occur in 7% of women by the end of the first month, suggesting an important role for anticoagulation [16]. Professor Petrie signed off by reminding the audience that counselling PPCM survivors regarding both contraception and

subsequent pregnancies is crucial to mitigate future risk.

BSH Young Investigators' Award and Philip Poole-Wilson Memorial Medal

Triumphing over fierce competition, Mrs Nathalie Conrad (The George Institute for Global Health, Oxford) emerged as the winner of the 2017 BSH Young Investigators' Award. Her research used linked medical records from primary and secondary care to analyse patterns in the incidence of heart failure within a population of four million people tracked from 2002 to 2014 [17]. Over this period there were 93,074 incident diagnoses of heart failure, with this total approximating new cases of breast, prostate, lung and bowel malignancy combined. Notably, socio-economic analysis revealed that deprived individuals were 61% more likely to develop heart failure and the gap in age at first presentation by socio-economic status widened in later years. Mrs Conrad concluded that incident heart failure represents a growing burden to health services in absolute terms, but that recognition of the link between social inequality and age of incident diagnosis hints at potentially reversible factors that might be targeted in the future.

Finally, Professor Karl Swedberg (University of Gothenburg; Imperial College, London) was the recipient of the Society's prestigious Philip Poole-Wilson Memorial Medal. This award, bestowed biennially, was in recognition of his extraordinary career contribution to heart failure research. Stretching back from vital recent work demonstrating the role of angiotensin–neprilysin inhibition in heart failure, Professor Swedberg has been a key player in the development of many essential heart failure therapies, including beta-blockers,[18] ivabradine [19] and, aptly for this meeting, enalapril, as one of the primary investigators in the CONSENSUS trial.

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